Downloading your design to Altera's UP2 board

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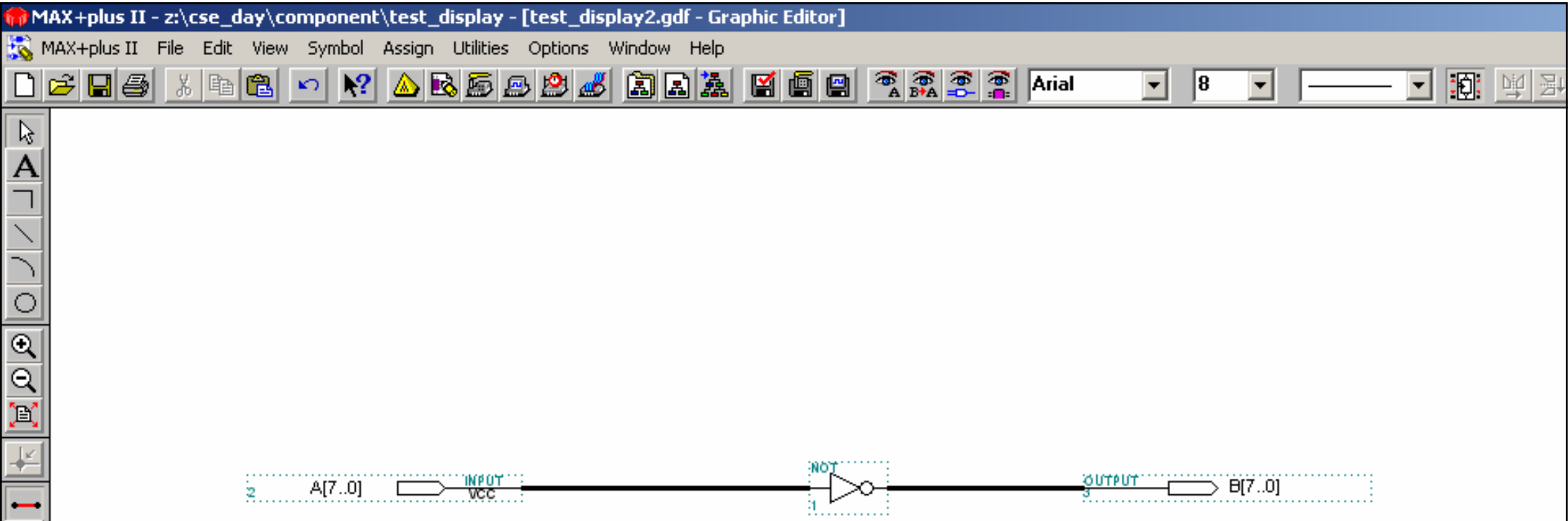
Drivers for Win 2000 and Win XP

- Located at C:\maxplus2\Drivers\win2000 assuming that you install maxplus2 in C drive
- You need to plug-in the Byteblaster cable and the board before you start the installation process
- Then follow instruction from the following web-site:

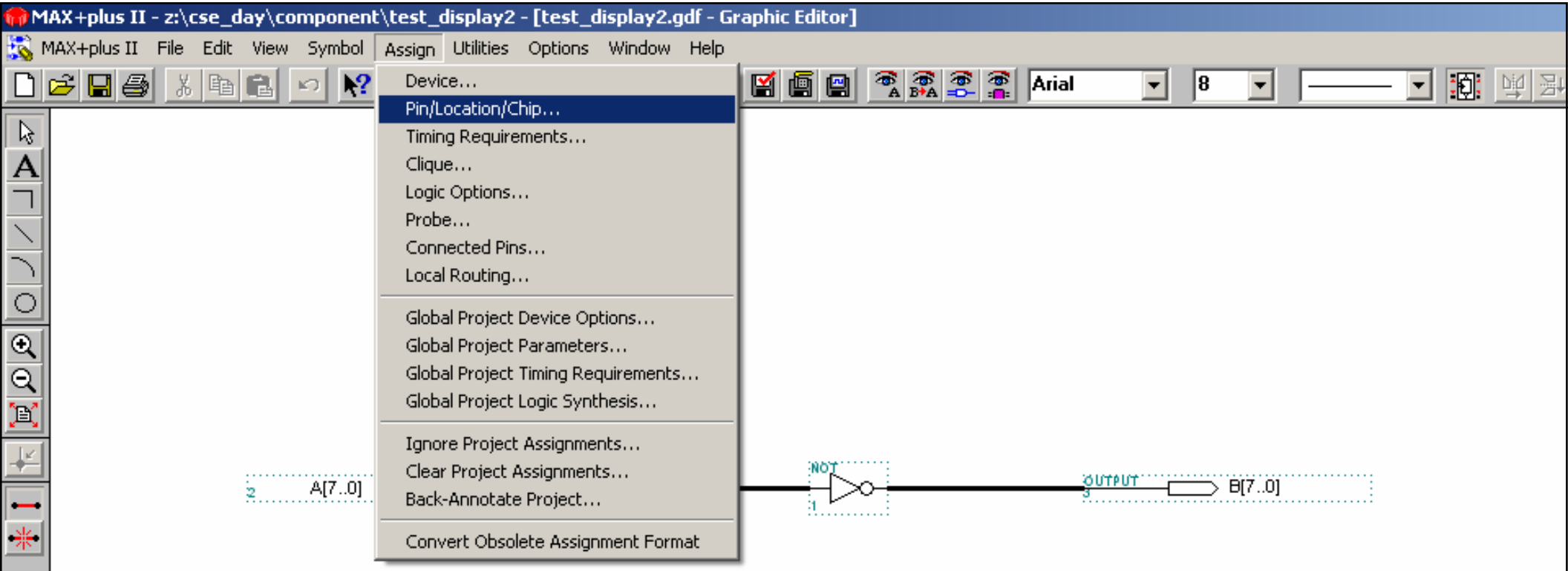
  http://www.altera.com/support/software/drivers/dri-bb-xp.html

Downloading Design

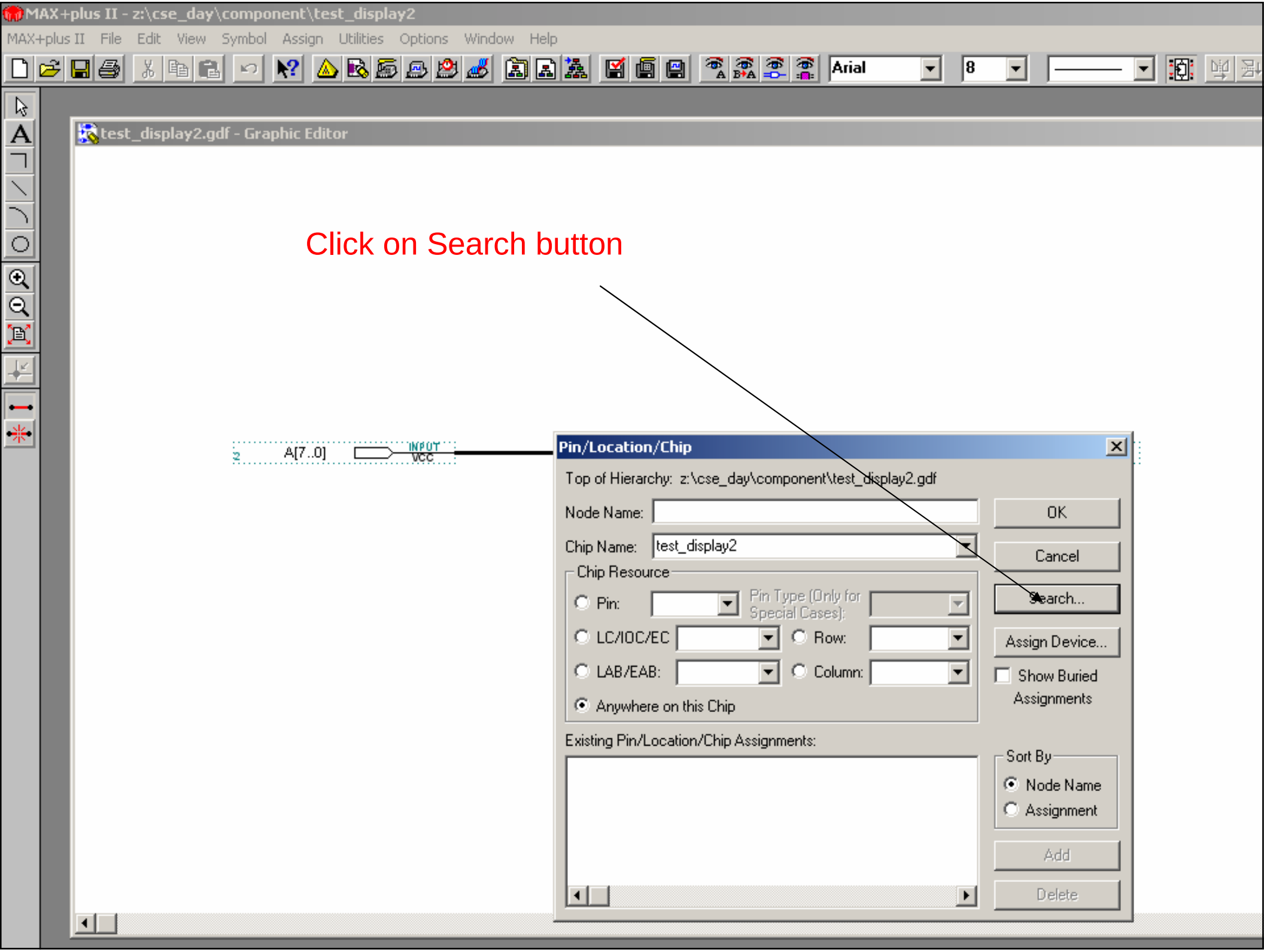
- Downloading design requires only a few more additional steps from normal compilation
  - Set the jumper on the board (refer to the manual that came with the board. For this project, you would only need to download FLEX10K)
  - Set the downloading device to byteblaster
  - Perform pin assignment
  - Recompile the design
  - Program the chip

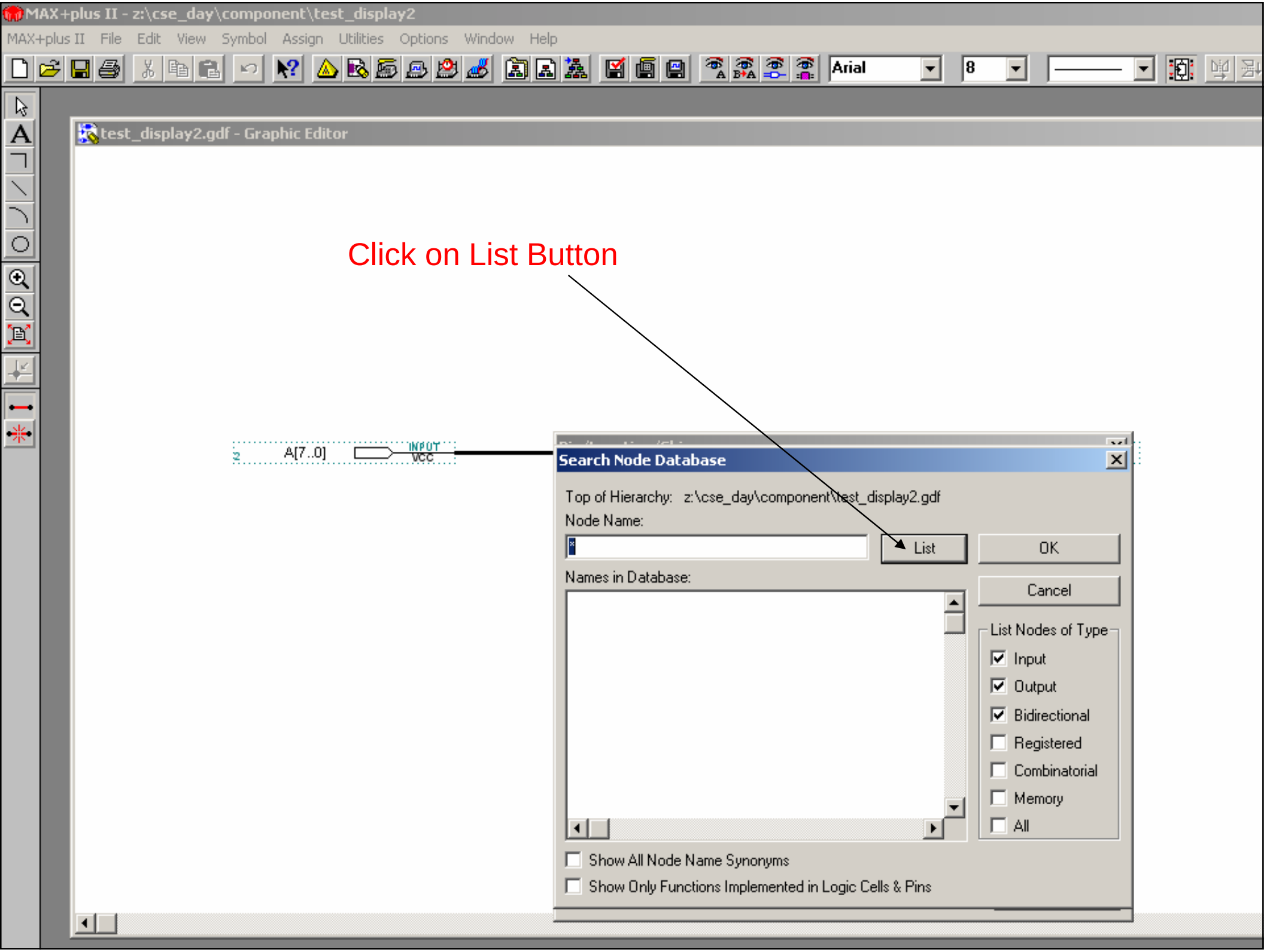


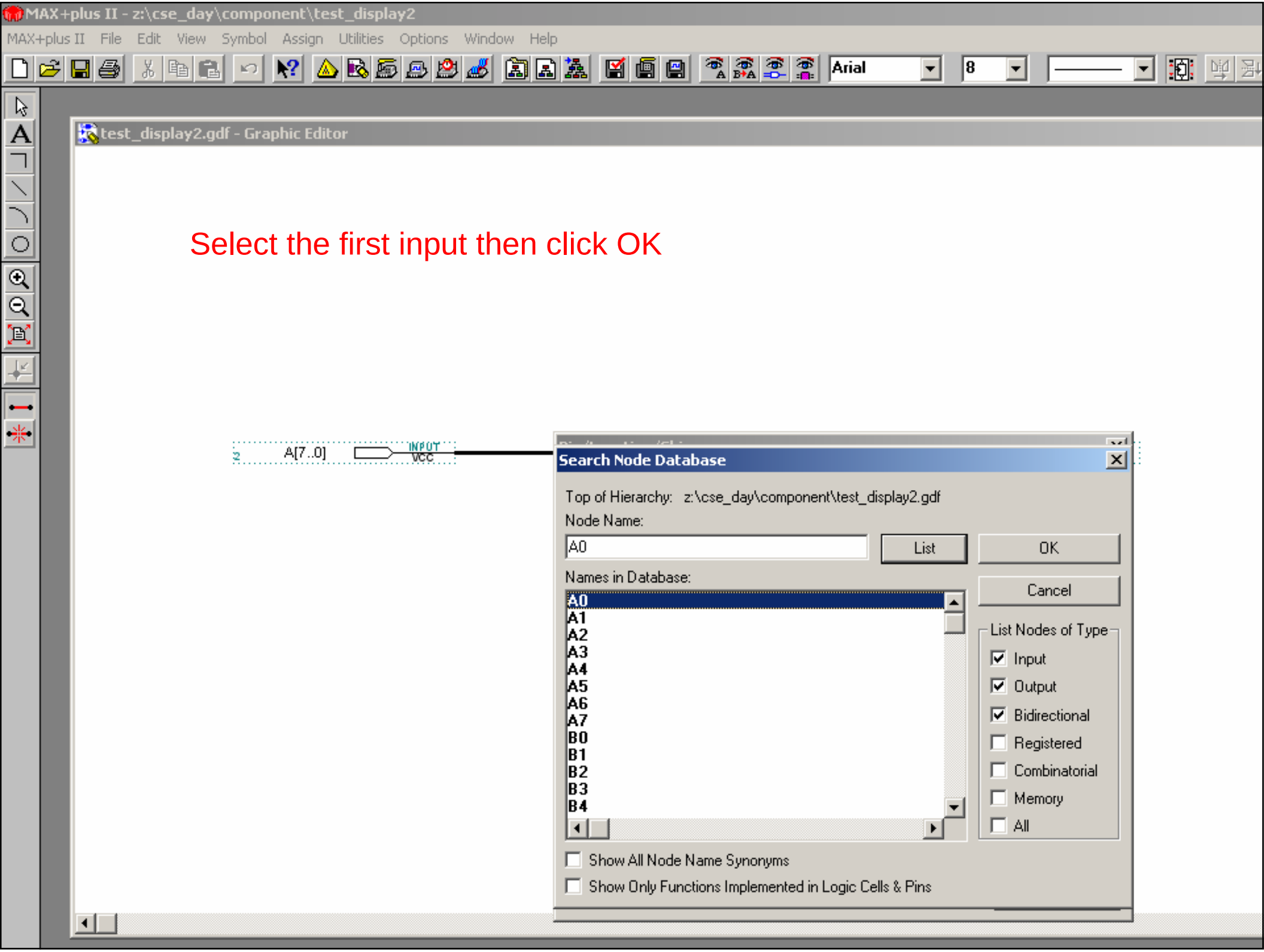
Create a design as shown in the figure above. Assign the device to FLEX10K70RC240-2 and compile the design.



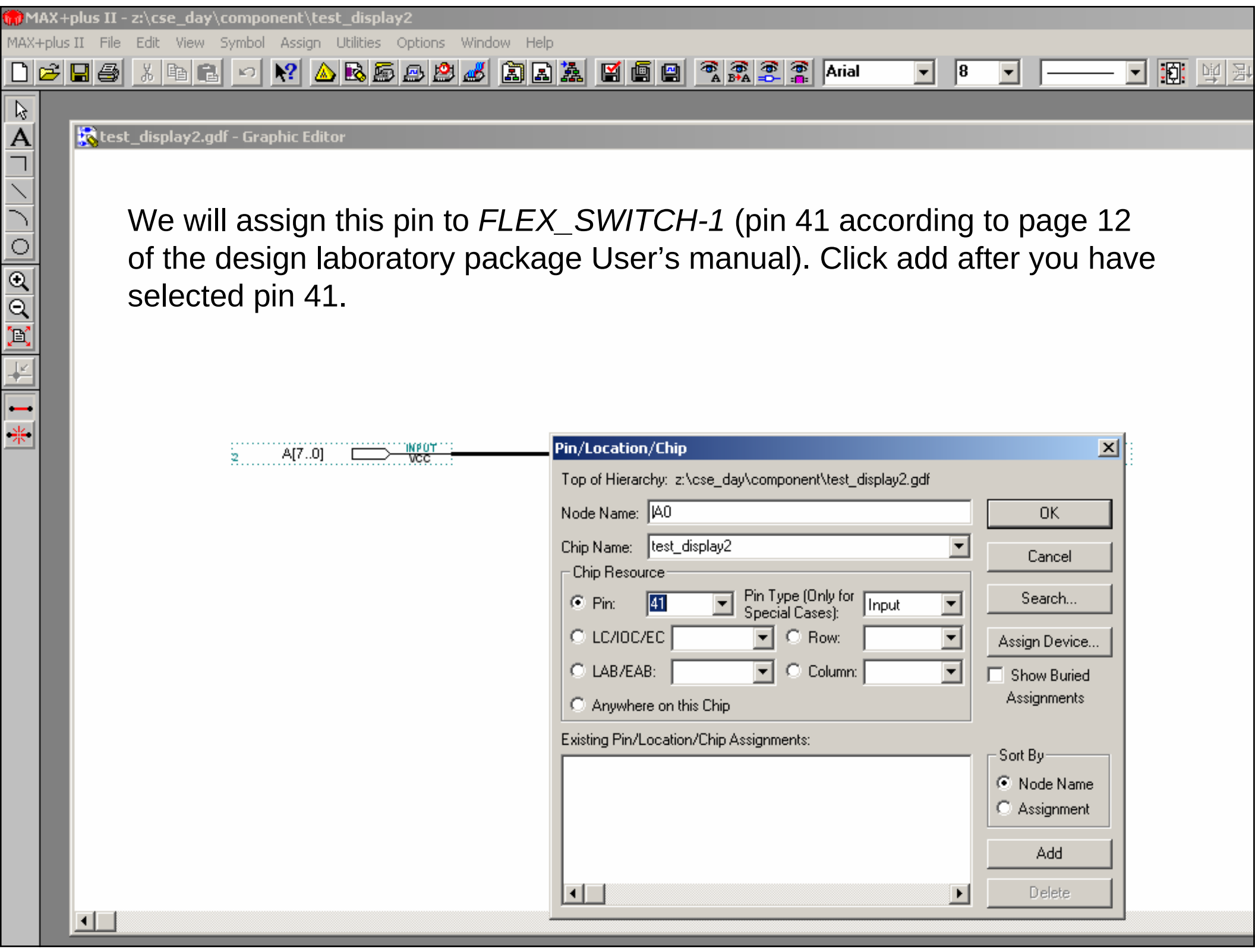
We will now perform pin assignment

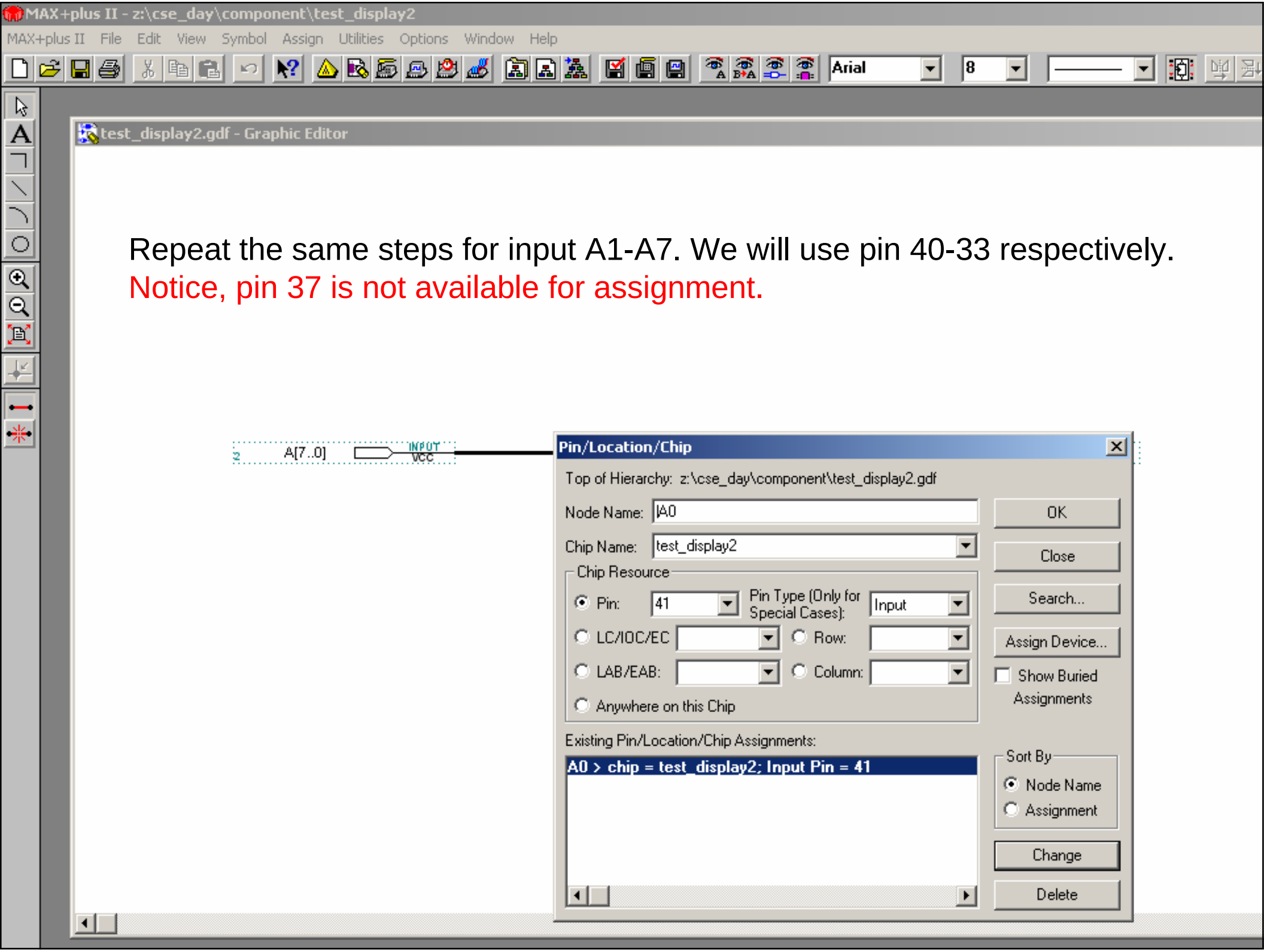

MAX+plus II - z:\cse_day\component\test_display2
MAX+plus II File Edit View Symbol Assign Utilities Options Window Help
Arial
8
test_display2.gdf - Graphic Editor
Click on Search button
A[7..0]
INPUT
VCC
Pin/Location/Chip
Top of Hierarchy: z:\cse_day\component\test_display2.gdf
Node Name:
Chip Name: test_display2
Chip Resource
Pin:
Pin Type (Only for Special Cases):
LC/IOC/EC
Row:
LAB/EAB:
Column:
Anywhere on this Chip
OK
Cancel
Search...
Assign Device...
Show Buried Assignments
Existing Pin/Location/Chip Assignments:
Sort By
Node Name
Assignment
Add
Delete

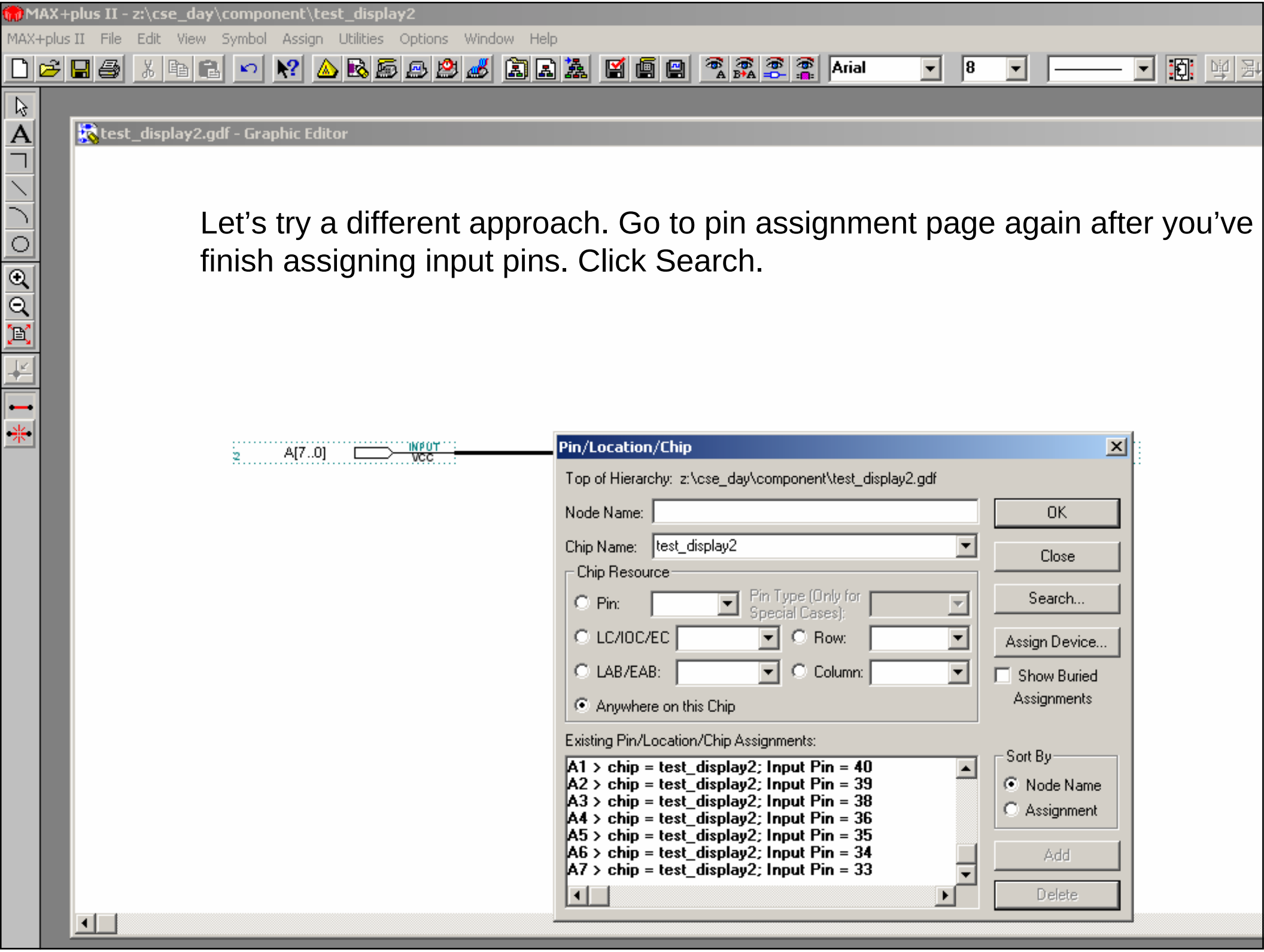

MAX+plus II - z:\cse_day\component\test_display2
MAX+plus II File Edit View Symbol Assign Utilities Options Window Help
Arial
8
test_display2.gdf - Graphic Editor
Click on List Button
A[7..0]
INPUT
VCC
Search Node Database
Top of Hierarchy: z:\cse_day\component\test_display2.gdf
Node Name:
List
OK
Cancel
Names in Database:
List Nodes of Type
Input
Output
Bidirectional
Registered
Combinatorial
Memory
All
Show All Node Name Synonyms
Show Only Functions Implemented in Logic Cells & Pins

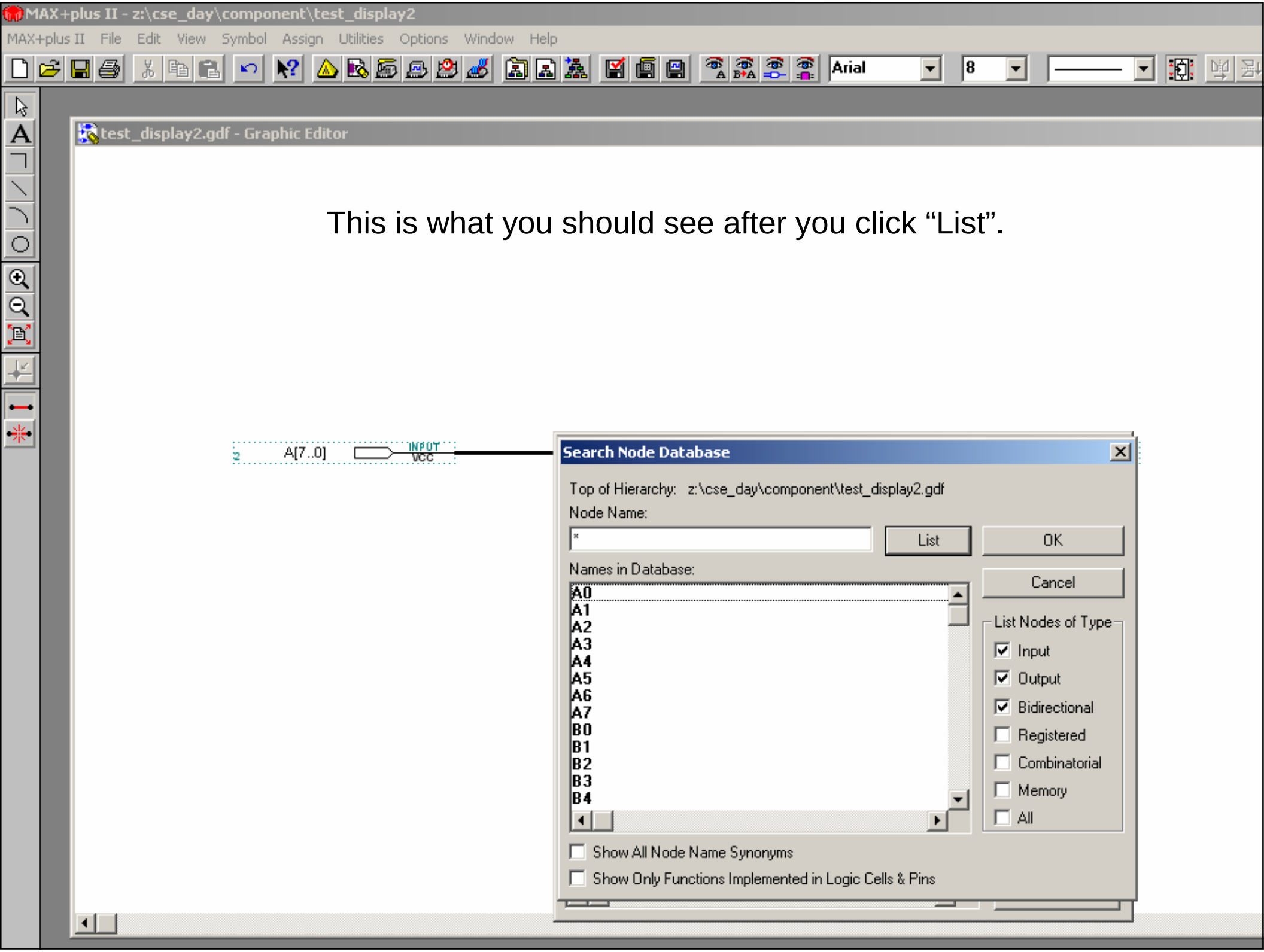

MAX+plus II - z:\cse_day\component\test_display2
MAX+plus II File Edit View Symbol Assign Utilities Options Window Help
Arial
8
test_display2.gdf - Graphic Editor
Select the first input then click OK
A[7..0]
INPUT
VCC
Search Node Database
Top of Hierarchy: z:\cse_day\component\test_display2.gdf
Node Name:
A0
List
OK
Cancel
Names in Database:
A0
A1
A2
A3
A4
A5
A6
A7
B0
B1
B2
B3
B4
List Nodes of Type
Input
Output
Bidirectional
Registered
Combinatorial
Memory
All
Show All Node Name Synonyms
Show Only Functions Implemented in Logic Cells & Pins

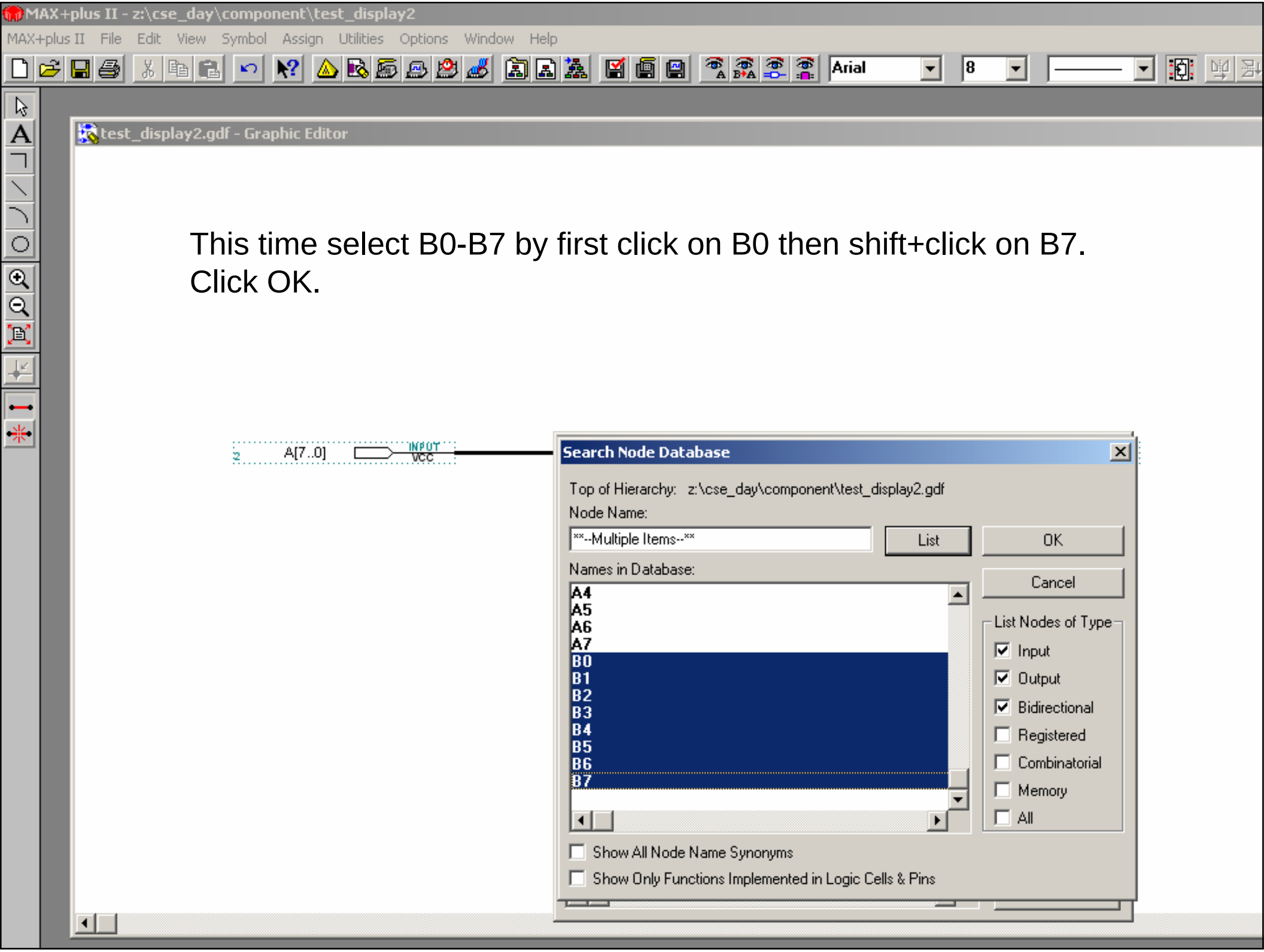
We will assign this pin to *FLEX_SWITCH-1* (pin 41 according to page 12 of the design laboratory package User's manual). Click add after you have selected pin 41.

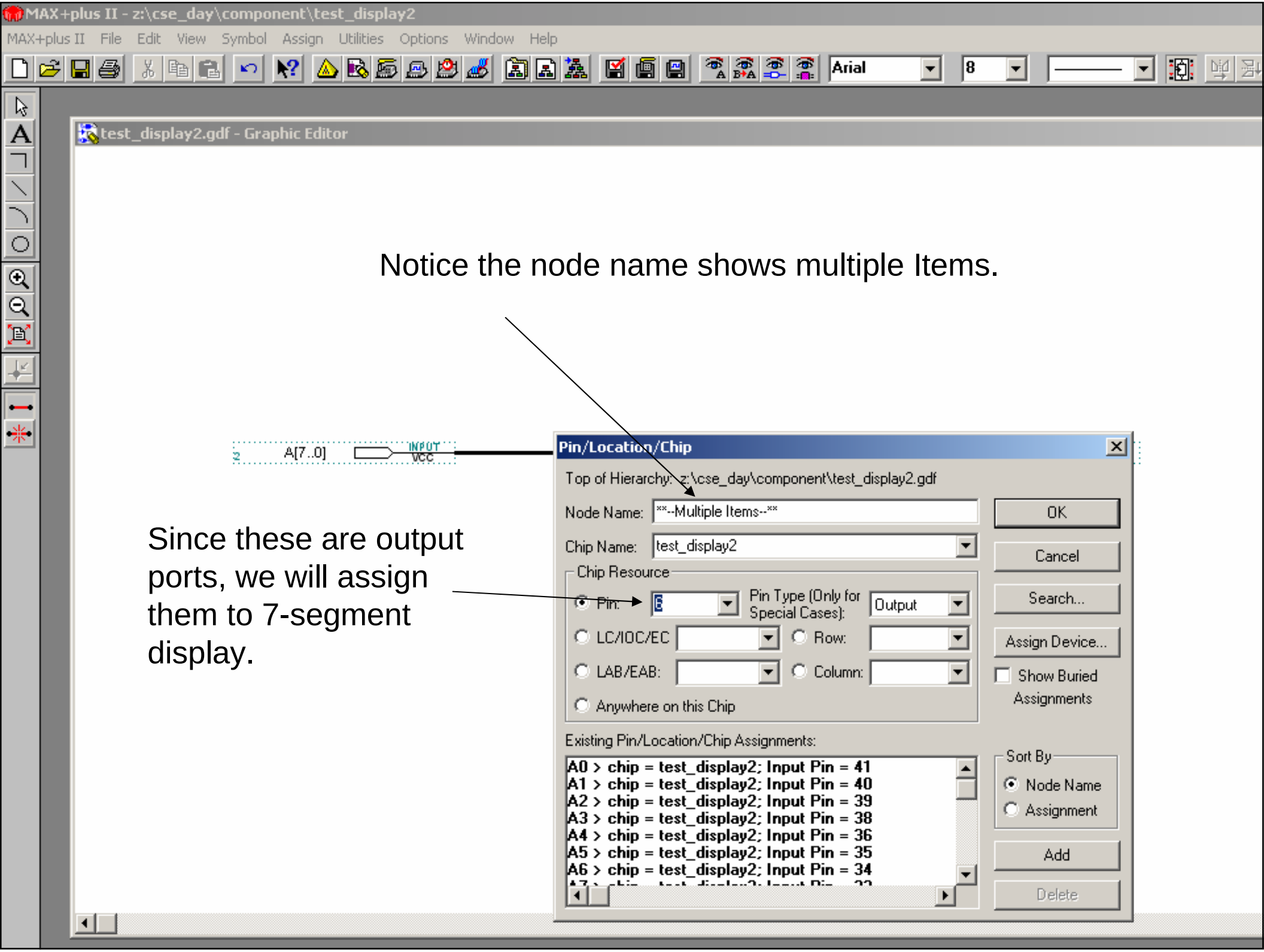


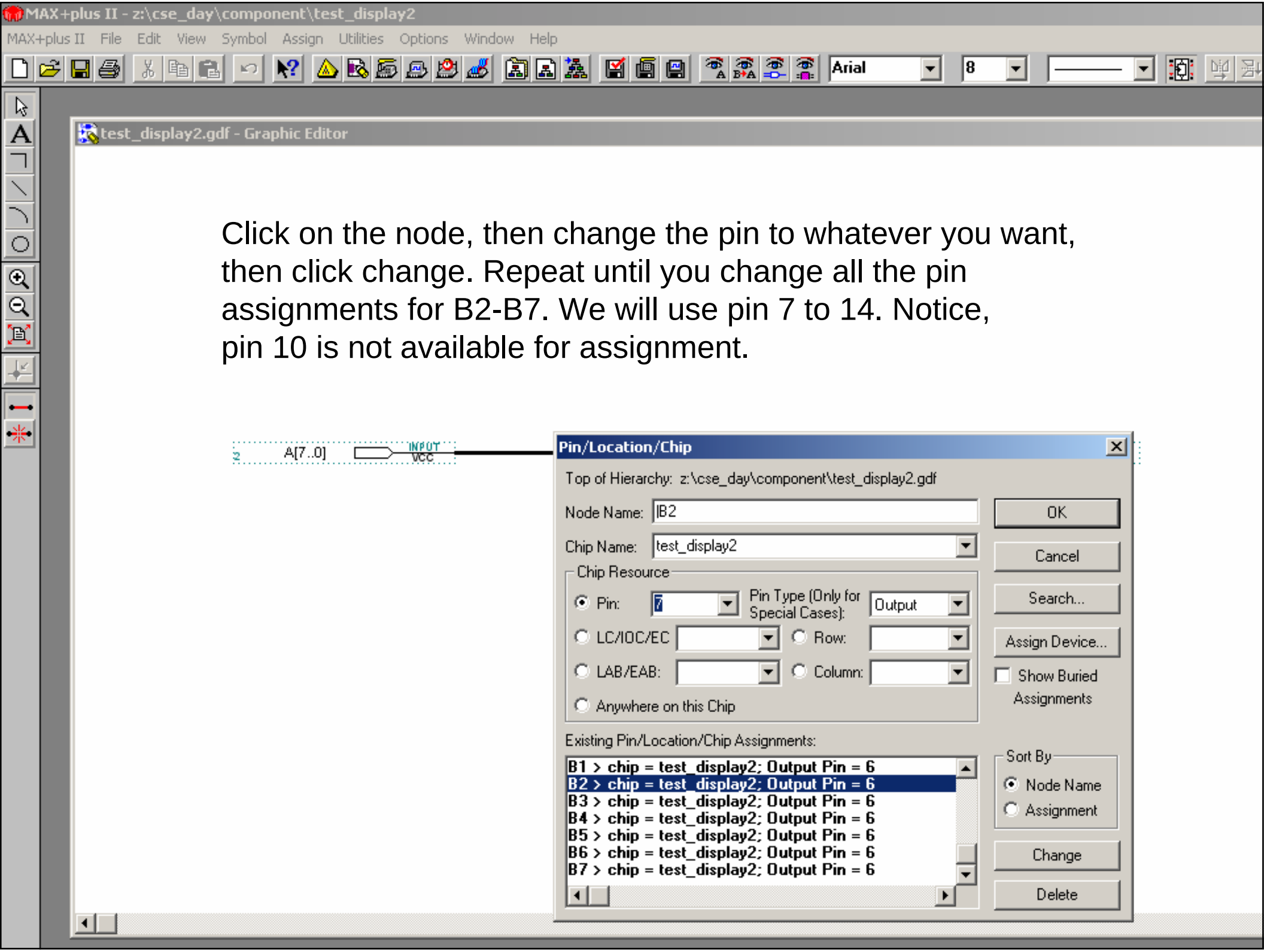

MAX+plus II - z:\cse_day\component\test_display2
MAX+plus II File Edit View Symbol Assign Utilities Options Window Help
Arial
8
test_display2.gdf - Graphic Editor
Repeat the same steps for input A1-A7. We will use pin 40-33 respectively.
Notice, pin 37 is not available for assignment.
A[7..0]
INPUT
VCC
Pin/Location/Chip
Top of Hierarchy: z:\cse_day\component\test_display2.gdf
Node Name: A0
Chip Name: test_display2
Chip Resource
Pin: 41
Pin Type (Only for Special Cases): Input
LC/IOC/EC
Row:
LAB/EAB:
Column:
Anywhere on this Chip
OK
Close
Search...
Assign Device...
Show Buried Assignments
Existing Pin/Location/Chip Assignments:
A0 > chip = test_display2; Input Pin = 41
Sort By
Node Name
Assignment
Change
Delete


MAX+plus II - z:\cse_day\component\test_display2
MAX+plus II File Edit View Symbol Assign Utilities Options Window Help
Arial
8
test_display2.gdf - Graphic Editor
Let's try a different approach. Go to pin assignment page again after you've finish assigning input pins. Click Search.
A[7..0]
INPUT
VCC
Pin/Location/Chip
Top of Hierarchy: z:\cse_day\component\test_display2.gdf
Node Name:
Chip Name: test_display2
Chip Resource
Pin:
Pin Type (Only for Special Cases):
LC/IOC/EC
Row:
LAB/EAB:
Column:
Anywhere on this Chip
OK
Close
Search...
Assign Device...
Show Buried Assignments
Existing Pin/Location/Chip Assignments:
A1 > chip = test_display2; Input Pin = 40
A2 > chip = test_display2; Input Pin = 39
A3 > chip = test_display2; Input Pin = 38
A4 > chip = test_display2; Input Pin = 36
A5 > chip = test_display2; Input Pin = 35
A6 > chip = test_display2; Input Pin = 34
A7 > chip = test_display2; Input Pin = 33
Sort By
Node Name
Assignment
Add
Delete


MAX+plus II - z:\cse_day\component\test_display2
MAX+plus II File Edit View Symbol Assign Utilities Options Window Help
Arial
8
test_display2.gdf - Graphic Editor
This is what you should see after you click “List”.
A[7..0]
INPUT
VCC
Search Node Database
Top of Hierarchy: z:\cse_day\component\test_display2.gdf
Node Name:
*
List
OK
Cancel
Names in Database:
A0
A1
A2
A3
A4
A5
A6
A7
B0
B1
B2
B3
B4
List Nodes of Type
Input
Output
Bidirectional
Registered
Combinatorial
Memory
All
Show All Node Name Synonyms
Show Only Functions Implemented in Logic Cells & Pins

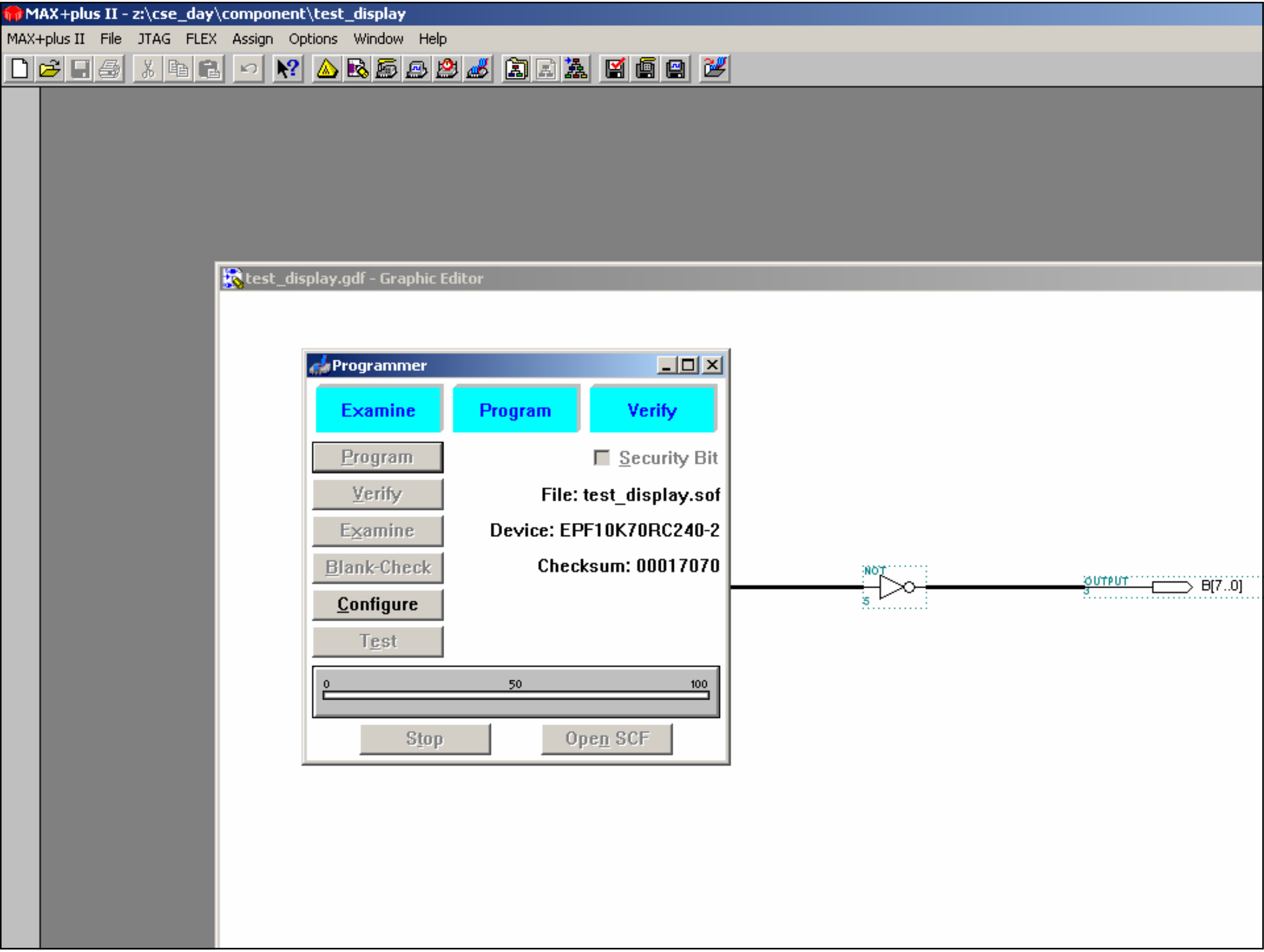

MAX+plus II - z:\cse_day\component\test_display2
MAX+plus II File Edit View Symbol Assign Utilities Options Window Help
Arial
8
test_display2.gdf - Graphic Editor
This time select B0-B7 by first click on B0 then shift+click on B7.
Click OK.
A[7..0]
INPUT
VCC
Search Node Database
Top of Hierarchy: z:\cse_day\component\test_display2.gdf
Node Name:
--Multiple Items--
List
OK
Cancel
Names in Database:
A4
A5
A6
A7
B0
B1
B2
B3
B4
B5
B6
B7
List Nodes of Type
Input
Output
Bidirectional
Registered
Combinatorial
Memory
All
Show All Node Name Synonyms
Show Only Functions Implemented in Logic Cells & Pins


MAX+plus II - z:\cse_day\component\test_display2
MAX+plus II File Edit View Symbol Assign Utilities Options Window Help
Arial
8
test_display2.gdf - Graphic Editor
Notice the node name shows multiple Items.
A[7..0]
INPUT
VCC
Since these are output ports, we will assign them to 7-segment display.
Pin/Location/Chip
Top of Hierarchy: z:\cse_day\component\test_display2.gdf
Node Name: **--Multiple Items--**
Chip Name: test_display2
Chip Resource
Pin: 6
Pin Type (Only for Special Cases): Output
LC/IOC/EC
Row:
LAB/EAB:
Column:
Anywhere on this Chip
OK
Cancel
Search...
Assign Device...
Show Buried Assignments
Existing Pin/Location/Chip Assignments:
A0 > chip = test_display2; Input Pin = 41
A1 > chip = test_display2; Input Pin = 40
A2 > chip = test_display2; Input Pin = 39
A3 > chip = test_display2; Input Pin = 38
A4 > chip = test_display2; Input Pin = 36
A5 > chip = test_display2; Input Pin = 35
A6 > chip = test_display2; Input Pin = 34
Sort By
Node Name
Assignment
Add
Delete


MAX+plus II - z:\cse_day\component\test_display2
MAX+plus II File Edit View Symbol Assign Utilities Options Window Help
test_display2.gdf - Graphic Editor
Click on the node, then change the pin to whatever you want, then click change. Repeat until you change all the pin assignments for B2-B7. We will use pin 7 to 14. Notice, pin 10 is not available for assignment.
A[7..0]
INPUT
VCC
Pin/Location/Chip
Top of Hierarchy: z:\cse_day\component\test_display2.gdf
Node Name: B2
Chip Name: test_display2
Chip Resource
Pin: 7
Pin Type (Only for Special Cases): Output
LC/IOC/EC
Row:
LAB/EAB:
Column:
Anywhere on this Chip
OK
Cancel
Search...
Assign Device...
Show Buried Assignments
Existing Pin/Location/Chip Assignments:
B1 > chip = test_display2; Output Pin = 6
B2 > chip = test_display2; Output Pin = 6
B3 > chip = test_display2; Output Pin = 6
B4 > chip = test_display2; Output Pin = 6
B5 > chip = test_display2; Output Pin = 6
B6 > chip = test_display2; Output Pin = 6
B7 > chip = test_display2; Output Pin = 6
Sort By
Node Name
Assignment
Change
Delete

Finishing up

- Recompile the project.
- Go to “Altera MaxPlus II” tab and choose programmer.
- Check to see if the filename is the same as the project’s name (e.g. *project_name.sof*)
- Click configure.


MAX+plus II - z:\cse_day\component\test_display
MAX+plus II File JTAG FLEX Assign Options Window Help
test_display.gdf - Graphic Editor
Programmer
Examine
Program
Verify
Program
Verify
Examine
Blank-Check
Configure
Test
Security Bit
File: test_display.sof
Device: EPF10K70RC240-2
Checksum: 00017070
0
50
100
Stop
Open SCF
NOT
OUTPUT
B[7..0]